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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/975,585	10/12/2001	Danilov Vyacheslav Alexandrovich	PAGA05US	1313

7590 07/22/2003

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EXAMINER

YAM, STEPHEN K

ART UNIT PAPER NUMBER

2878

DATE MAILED: 07/22/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/975,585

Applicant(s)

ALEXANDROVICH ET AL.

Examiner

Stephen Yam

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10/12/01 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A(1) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

Specification

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Objections

2. Claims 1, 4-7, and 9 objected to because of the following informalities:

In Claim 1, "the second photodiode electrode", "the second electrode of the transistor", "the control electrode", "the third transistor electrode" lack proper antecedent basis.

In Claims 1, 5, and 9, "at the other side" is unclear as it is unclear as to the other side of what component the claim language is referring to.

In Claim 4, "photodiodes" lacks proper antecedent basis as photodiodes have already been defined in parent Claim 1.

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In Claim 1, the claim refers to a photodiode and a load connected in series, although Fig. 1 refers to the photodiode and the load connected in *parallel*, and the claim language appears to recite the photodiode and load connected on *both sides* electrically (to both a signal contact and a common bus), which inherently implies that the two components are connected in parallel and not in series.

Claims 2-4 are indefinite by virtue of their dependency on an indefinite claim.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 2, and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Imaide et al. US Patent No. 4,355,335.

Regarding Claim 1, Imaide et al. teach (see Fig. 1A) a radiation detector comprising a photodiode (3) and a load (12), with the load being connected to the photodiode through a signal contact (4) and to a common bus (17) at the other side, characterized in that the detector additionally comprises a transistor (6) and an interrogation pulse generator (2), with a second photodiode electrode (top of (3)) coupled with a second electrode (left electrode of (3)) of the transistor, a control (gate/middle electrode) electrode of the transistor coupled with the output of the interrogation pulse generator, and a third transistor electrode (right electrode of (3)) is coupled with the common bus.

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In Claim 5, "the first electrode of the transistor", "the first plate of the capacitor", "the second plate", "the control electrode of the transistor", "the third electrode" lack proper antecedent basis.

In Claim 6, "a transistor" lacks proper antecedent basis as a transistor is already defined in parent Claim 5.

In Claim 7, "i-th load" lacks proper antecedent basis as "i" has not been defined.

In Claim 9, "the supply voltage bus", "the common bus", "the first electrode of the transistor", "the control electrode of the transistor", "the third electrode" lack proper antecedent basis.

Appropriate correction is required.

3. Claims 4, 8, and 11 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim should refer to other claims in the alternative **only**. See MPEP § 608.01(n). Accordingly, the claims have not been further treated on the merits.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. ³Claims 1-~~4~~ are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

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Regarding Claim 2, Imaide et al. teach (see Fig. 1A) N groups (a column) of elements, each consisting of the series-connected photodiode and transistor, placed in parallel with the load, and the interrogation pulse generator comprising N outputs each of the output being coupled with the transistor control electrode from the respective group of elements, where N is an integer > 1 .

Regarding Claim 9, Imaide et al. teach (see Fig. 1A) a radiation detector comprising a radiation-sensitive element (3) and a load (12), with the sensitive element being connected to a supply voltage bus (ground) at one side and the load being connected to a common (17) bus at one side, characterized in that said detector additionally comprises a transistor (6) and an interrogation pulse generator (2), with the sensitive element being connected to a first electrode (left electrode of (3)) of the transistor at the other side and the output of the interrogation pulse generator being connected to the control electrode (gate/middle electrode) of the transistor, and a third transistor electrode (right electrode of (3)) coupled with the load signal contact.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Imaide et al. in view of Henry et al. US Patent No. 3,535,526.

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Imaide et al. teach the detector in Claim 1, according to the appropriate paragraph above. Imaide et al. do not teach the detector comprising L loads, with N_i group of elements being placed in parallel with each i-th load, and the total number of groups of elements contained in said detector equals the number of N outputs of the interrogation pulse generator, where L is an integer > 1 , N_i is a positive integer. Henry et al. teach (see Fig. 2) a radiation detector comprising a phototransistor array such that the detector comprises L (# of rows) loads (20_j) (see Col. 1, lines 46-52), with N_i (# of columns) group of elements being placed in parallel with each i-th load, and the total number of groups of elements contained in said detector equals the number of N outputs of the interrogation pulse generator, where L is an integer > 1 , N_i is a positive integer (see Fig. 2). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use multiple loads as taught by Henry et al. in the detector of Imaide et al., to provide multiple simultaneous readouts for each row or column in order to more quickly perform a single two-dimensional detection.

5. Claims 5, 6, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Imaide et al. in view of Herbst et al. US Patent No. 4,338,515.

Regarding Claims 5 and 6, Imaide et al. teach (see Fig. 1A) a radiation detector comprising a radiation-sensitive element (3) and a load (12), with said sensitive element being connected to a supply voltage bus (ground) at one side, and the load being connected to a common bus (17) at one side, characterized in that said detector additionally comprises a transistor (6), and an interrogation pulse generator (2), and the output of the interrogation pulse generator is coupled with the control electrode of the transistor, with a third transistor electrode

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connected to the common bus. Regarding Claim 6, Imaide et al. teach (see Fig. 1A) N groups (a column) of elements, each consisting of the series-connected radiation-sensitive element and transistor, the common point of which is coupled to the load signal output, are connected between the supply voltage bus and common bus, and the interrogation pulse generator comprising N outputs each of the output being coupled with the transistor control electrode from the respective group of elements, where N is an integer > 1 . Imaide et al. do not teach a capacitor with the sensitive element being connected to a first electrode of the transistor at the other side and to the first plate of the capacitor, the second plate of which is connected to a signal contact of the load. Herbst et al. teach (see Fig. 1) a detector with an array (see Fig. 6) of elements (SE), the elements comprising a radiation-sensitive element (FD), transistor (T1), load element (L), and interrogation pulse generator (supplying ϕ_2), also including a capacitor (C_{SE}) wherein the sensitive element is a supply voltage bus (ground) at one side and connected to the first electrode of the transistor at the other side and to the first plate (bottom) of the capacitor, the second plate of which is connected to a signal contact (E) of the load. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the capacitor setup of Herbst et al. in the detector of Imaide et al. (in view of Henry et al. for Claim 3), to stabilize the frequency characteristics of the optical signal so it is more accurately outputted to a readout.

Regarding Claim 10, Imaide et al. teach the detector in Claim 9, according to the appropriate paragraph above. Imaide et al. do not teach a capacitor connected between the first transistor electrode and the common bus. Herbst et al. teach (see Fig. 1) a detector with an array (see Fig. 6) of elements (SE), the elements comprising a radiation-sensitive element (FD),

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transistor (T1), load element (L), and interrogation pulse generator (supplying ϕ_2), also including a capacitor (C_{SE}) connected between a first transistor electrode (left side of (T1) and a common bus (E). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the capacitor setup of Herbst et al. in the detector of Imaide et al. (in view of Henry et al. for Claim 3), to stabilize the frequency characteristics of the optical signal so it is more accurately outputted to a readout.

6. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Imaide et al. in view of Herbst et al. as applied to Claim 6, further in view of Henry et al.

Imaide et al. in view of Herbst et al. teach the detector in Claim 6, according to the appropriate paragraph above. Imaide et al. do not teach the detector comprising L loads, with N_i group of elements being placed in parallel with each i-th load, and the total number of groups of elements contained in said detector equals the number of N outputs of the interrogation pulse generator, where L is an integer > 1 , N_i is a positive integer. Henry et al. teach (see Fig. 2) a radiation detector comprising a phototransistor array such that the detector comprises L (# of rows) loads (20_j) (see Col. 1, lines 46-52), with N_i (# of columns) group of elements being placed in parallel with each i-th load, and the total number of groups of elements contained in said detector equals the number of N outputs of the interrogation pulse generator, where L is an integer > 1 , N_i is a positive integer (see Fig. 2). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use multiple loads as taught by Henry et al. in the detector of Imaide et al., to provide multiple simultaneous readouts for each row or column in order to more quickly perform a single two-dimensional detection.

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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen Yam whose telephone number is (703)306-3441. The examiner can normally be reached on Monday-Friday 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta can be reached on (703)308-4852. The fax phone numbers for the organization where this application or proceeding is assigned are (703)308-7724 for regular communications and (703)308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

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July 14, 2003



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